Mamm Creek Area
Well Review: APD Approval Notices to Operators

NTO 1: Northwest Colorado notification Policy-Effective for Notices Received on or after January 1, 2010 (revised September 21, 2010)

- States contact at COGCC to submit data
- FYI: Form 22 is an Accident Report for personnel, equipment, and wellsite

NTO 2: Piceance Rulison Field (May 2001, **June 2006**)

- Apply to all wells from Williams Fork and deeper
- Defines Rulison Field over pressured area (map)
  - T6S R94W Sec 9, 15-23, 26-35
  - T7S R94W Sec 2-6, 8-10, 11, 15, 16
  - Surface casing minimum depth of 1100 feet
- Applies to Garfield County
  - Surface casing to be set 10% of the total depth of well

Ex. 5 - Deliberative Process

  - Gas kicks, lost circulation zones (> 100 bbl), and water flows to be reported and additional data to be collected

Ex. 5 - Deliberative Process

  - After cementing, production csg annular fluid to be monitored for 4 hrs and track loss of mud in excess of 20 bbl to keep hole full

NTO 3: Mamm Creek Field Area (July 2004, **Feb 2007**)

- Revised after March 2006 "Phase I Hydro Characterization of Mamm Creek"
- Apply to all wells for Mesaverde and deeper
- Specified locations:
  - T6S R91W-93W
  - T7S R91W-93W
  - T8S R 91W-93W
  - T9S R 91W
- Cement required 500 ft above TOG; CBL verification required
  - TOG was NOT defined up until 2011; TOG via operators defined as commercial zone NOT shallow gas—this was pointed out in June 2011 report
  - Currently in East Mamm Creek TOG is being defined as 2500 units and identified on mud logs or open hole logs

Ex. 5 - Deliberative Process

- BH monitored to 72 hrs after production csg cemented; >150 psi to be reported
- CBL delay has requirements of temp log; but not allowed in:
  - T6S R92W Sec 33-35 (outside EPA study area)

- T7S R92W Sec 1, 2, 4, 10, 11, 12 (outside EPA study area)
  - Why the delay?
- Rig control stipulation—operator can't have >2 rigs in operation in East Mamm Creek
- Surface casing to be set at 15% of TD or 500 ft below water well in 1 mile radius
  - Note this requirement supersedes NTO #2
- Formation Integrity Test at least 50 ft below surface csg
- FIT dependant intermediate casing requirement
- (1) person on-site during drilling to be trained for blow out prevention operations
- Choke pressures vs FIT
- Additional BH monitoring (intermediate csg included) for 30 days after cement job; report >150 psi and prepare remediation plan
- Prior to completion record BH to be reported with Sundry Notice
  - I have not see BH psi reports on COGCC website; #4 requires "**report all annual bradenhead data on spreadsheet " (can we get this?)**
  - Monitoring required in future; any variances noted and if so, investigated?
- BH to be monitored during frac jobs

NTO 4: Bradenhead Pressure Reporting- Garfiled County (Mamm Creek & Rulison Fields) Mesa County (Buzzard Field) July 8, 2010

- Developed to promote BH monitoring and reporting consistency
- T6-9S R91-93W
- Continuous liquid flow or >150 psi to be reported; to be monitored annually
- By Nov 1: report all annual bradenhead data on spreadsheet **(can we get this?)**
- For consistency, well shut-in (7) days prior to conducting test; must bleed off prior to reaching 150 psig and report actual shut-in time
- Venting (ie keeping BH open full time) and continued monitoring is typical mitigation step (can we find out what wells are currently under mitigation?); combustors encouraged
- If >150 psig, high flow rates, or significant fluid (mud or water) then remediation a consideration

Review of COAs:

Surface casing more than 50 feet below depth of the deepest water well within 1 mile of the surface location when corrected for elevation differences.

- Wondering if this isn't a typo given #3 states 500 ft below…

Comment 33: Casing comments: production string second hole size= 7 7/8, production cement top = 500" above top of gas

- June 2011 report points out issue with not defining TOG; operators reporting TOG as commercial top

Comment 31: Mud disposal on-site via land spreading, evaporation, burying

Current Status

Ex. 5 - Deliberative Process

EPA Findings

Ex. 5 - Deliberative Process